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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/620,749	07/15/2003	Shan Cong	5701-01293	9001

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EXAMINER

ALSOMIRI, ISAM A

ART UNIT PAPER NUMBER

3662

DATE MAILED: 06/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/620,749

Applicant(s)

CONG ET AL.

Examiner

Isam A Alsomiri

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 July 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-37 is/are pending in the application.
4a) Of the above claim(s) 1-6 and 29-31 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 7-28 is/are allowed.
- 6) ☒ Claim(s) 32-37 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

DETAILED ACTION

Election/Restrictions

Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1-6 and 29-31, drawn to estimating a curvature of a roadway based on the vehicle speed and yaw rate, classified in class 342, subclass 70.
- II. Claims 7-28 and 32-37, drawn to estimating a state of a target vehicle on a roadway, classified in class 342, subclass 107.

The inventions are distinct, each from the other because of the following reasons:

Inventions II and I are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed because the combination can use different curvature estimation other than the subcombination. The subcombination has separate utility such as estimating the road curve based on the vehicle speed and yaw rate.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

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Because these inventions are distinct for the reasons given above and have acquired a separate status in the art because of their recognized divergent subject matter, restriction for examination purposes as indicated is proper.

During a telephone conversation with Kurt L. Vanvoorhies Registration No. 38,643 on May 19, 2004 a provisional election was made with traverse to prosecute the invention of group II, claims 7-28 and 32-37. Affirmation of this election must be made by applicant in replying to this Office action. Claims 1-6 and 29-31 withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Information Disclosure Statement

The MPEP states the following with respect to large information disclosure statements:

Although a concise explanation of the relevance of information is not required for English language information, applicants are encouraged to provide a concise explanation of why the English-language information is being submitted. Concise explanations (especially those that point out the relevant pages and lines) are helpful to the Office, particularly where documents are lengthy and complex and applicant is aware of a section that is highly relevant to patentability or where a large number of documents are submitted and applicant is aware that one or more is highly relevant to patentability. -- M.P.E.P. § 609 (emphasis added).

"Aids to Compliance With Duty of Disclosure," item 13:

It is desirable to avoid the submission of long lists of documents if it can be avoided. Eliminate clearly irrelevant information and marginally pertinent cumulative information. If a long list is submitted, highlight those documents which have been specifically brought to Applicant's attention and/or are known to be of the most significance. -- M.P.E.P. § 2004 (emphasis added).

Therefore, it is recommended that if any information that has been cited by Applicant in the Information Disclosure Statement(s) is known to be material to patentability as defined by 37 C.F.R. § 1.56, Applicant should present a concise statement as to the relevance of that/those particular documents.

Specification

Content of Specification

The specification is missing section (e), (f), and (g). The specification should include the missing section.

- (a) Title of the Invention:
- (b) Cross-References to Related Applications: See 37 CFR 1.78 and MPEP § 201.11.
- (c) Statement Regarding Federally Sponsored Research and Development: See MPEP § 310.
- (d) Incorporation-By-Reference Of Material Submitted On a Compact Disc:
- (e) **Background of the Invention:** See MPEP § 608.01(c). The specification should set forth the Background of the Invention in two parts:
 - (1) **Field of the Invention:** A statement of the field of art to which the invention pertains. This statement may include a paraphrasing of the applicable U.S. patent classification definitions of the subject matter of the claimed invention. This item may also be titled "Technical Field."
 - (2) **Description of the Related Art including information disclosed under 37 CFR 1.97 and 37 CFR 1.98:** A description of the related art known to the applicant and including, if applicable, references to specific related art and problems involved in the prior art which are solved by the applicant's invention. This item may also be titled "Background Art."

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- (f) **Brief Summary of the Invention:** See MPEP § 608.01(d). A brief summary or general statement of the invention as set forth in 37 CFR 1.73. The summary is separate and distinct from the abstract and is directed toward the invention rather than the disclosure as a whole. The summary may point out the advantages of the invention or how it solves problems previously existent in the prior art (and preferably indicated in the Background of the Invention). In chemical cases it should point out in general terms the utility of the invention. If possible, the nature and gist of the invention or the inventive concept should be set forth. Objects of the invention should be treated briefly and only to the extent that they contribute to an understanding of the invention.
- (g) **Brief Description of the Several Views of the Drawing(s):** See MPEP § 608.01(f). A reference to and brief description of the drawing(s) as set forth in 37 CFR 1.74.
- (h) **Detailed Description of the Invention:**
- (i) **Claim or Claims:**
- (j) **Abstract of the Disclosure:**
- (k) **Sequence Listing.**

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 32-37 are rejected under 35 U.S.C. 102(e) as being anticipated by Russell et

al. US006675094B2. Referring to claim 32, Russell discloses in figures 1-3 a system for estimating a state of a target vehicle on a roadway, comprising:

a. a road curvature estimation subsystem (see figure 3 [32]) for estimating a curvature of a roadway upon which a host vehicle is traveling;

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b. a target state estimation subsystem operatively coupled to said host vehicle, wherein said target state estimation subsystem is adapted to track the target vehicle on the roadway (see figure 3 [30], range, range rate, angle, lateral velocity);

c. at least one processor operatively coupled to or a part of said road curvature estimation subsystem and said target state estimation subsystem, wherein said processor is adapted to determine if the target vehicle is likely traveling in a particular lane of the roadway, responsive to said curvature estimated by said road curvature estimation subsystem, and responsive to a measure of target kinematics from said target state estimation subsystem (see figure [38] and [40]).

Referring to claim 33, Russell discloses in figures 1-3 the road curvature estimation subsystem for estimating the curvature of the roadway comprises:

a. a speed sensor adapted to measure a longitudinal speed of said host vehicle on the roadway(see figure 3 [30]); and

b. a yaw rate sensor (see figure 3 [30]) adapted to measure a yaw rate of said host vehicle on the roadway, wherein said at least one processor is operatively coupled to said speed sensor and to said yaw rate sensor, and said processor is adapted to estimate a curvature of the roadway responsive to measurements from said speed sensor and from said yaw rate sensor (see figure 3 [32]).

Referring to claim 34, Russell discloses in figures 1-3 a target state estimation subsystem comprises a radar system operatively coupled to said host vehicle (figure 1 [14]).

Referring to claim 35, Russell discloses in figures 1-3 the processor comprises an extended Kalman filter adapted to estimate a measure of target kinematics responsive to

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measures of range, range rate and azimuth angle of said target state estimation subsystem (see col. 5 lines 46-53).

Referring to claim 36. Russell discloses in figures 1-3 a measure of target kinematics comprises a measure of target position relative to a coordinate (host position vector) system of the host vehicle (see col. 5 lines 46-53).

Referring to claim 37. Russell discloses in figures 1-3 the measure of target kinematics further comprises a measure of target velocity relative to said coordinate system of the host vehicle (see col. 4 lines 29-37).

Allowable Subject Matter

Claims 7-28 are allowed.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The cited prior art to (Ibrahim; Feckner et al.; Franke et al. [possible 102 reference]; Engleman;) show various radar systems for estimating the state of a target vehicle on a roadway.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Isam A Alsomiri whose telephone number is 703-305-5702. The examiner can normally be reached on Monday-Thursday and every other Friday (8:30-5:00).

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas H Tarcza can be reached on 703-306-4171. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Isam Alsomiri



May 26, 2004



**THOMAS H. TARCZA
SUPERVISORY PATENT EXAMINER
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